Public Build Instructions for MBARK

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About this document

This document is intended for software developers interested in evaluating the National Institute of Standards and Technology (NIST) Multimodal Biometric Application Resource Kit (MBARK). This document describes how to build a running sample application from the MBARK source code.

These instructions assume that you have

- experience in building Windows software with Visual Studio.
- a clean installation (i.e., no additional software installed) of Windows XP SP3 (32-bit)

> If what you want is to simply try out the MBARK interface, then this document is **not** for you. An installer of the pre-compiled binaries is available at http://mbark.nist.gov.

Hardware Requirements

To build MBARK, you need a system capable of running Microsoft Visual Studio 2008 SP1. Microsoft provides specific guidance on recommended hardware via their Microsoft Developer Network (MSDN) website.

A system that meets the minimal requirements for running Visual Studio 2008 should have adequate processor, memory, and hard drive space for running the demonstration software.

Base System & Visual Studio

1. Start with a basic 32-bit Windows XP installation, version SP2 or newer. Perform any necessary Windows updates.

2. Install WinRAR (www.rarsoft.com). This allows for the expansion of certain non-Windows-native archive types (for example, .tar.gz files).
3. Install Microsoft Visual Studio Professional 2008 SP1.
   Note: Building MBARK with Visual Studio Express is possible, but is more complex. (VB and C# projects within MBARK must be built separately, and each project's references must be altered to point to specific DLL files rather than other projects' output.)

Syncfusion

1. This document assumes that you are installing the Syncfusion free trial version, which allows for 30 days of functionality. The full version of Syncfusion will also work with MBARK.
2. Go to www.syncfusion.com/downloads/evaluation
3. Fill out the required information for the free trial.
4. In the "Select Essential Studio edition" section, choose "Windows Forms Edition".
5. Click "Download." On the next page, select the "Windows Forms Edition" .exe file and begin the actual download. *Save the "Unlock Key" for later use—you will need it during the install.*
6. Install Syncfusion (leaving the installer defaults intact)
7. When prompted, enter the user information (from step 3) and the Unlock Key (from step 5) that you got when signing up for the evaluation.

ANTLR (requires Java)

1. Install the Java Runtime Environment (JRE). Leave installer defaults intact.
   Note: For the writing of these instructions, we used Java SE Runtime Environment v.6 Update 13 (6u13) for Windows, which is a 15MB download.
2. Install ANTLR:
   a. Go to http://www.antlr.org/download.html
   b. Download version 3.1.3 of the ANTLR Source Distribution (the most current version as of the writing of this document).
      Note: If you choose to use a different version number, you will need to change the jar filenames in the BiCCL Visual Studio project's Pre-Build script (BiCCL (project) → Properties→ Build Events) to match the new version numbers.

    c. Extract the archive and rename the top-level folder from "antlr-3.1.3" to "antlr". (This has to do with the way the MBARK build script utilizes the ANTLR libraries.)

    d. If necessary, move the "antlr" folder to the root of the system drive (e.g., C:\antlr).

MBARK

1. Download the MBARK source code (MBARK.zip) from mbark.nist.gov.
2. Unzip the contents of MBARK.zip to the location of your choice. (We used C:\MBARK as our source code directory.)
3. Open C:\MBARK\VirtualSensorControllerSolution.sln in Visual Studio.
   If asked, choose to permanently remove source control bindings from the projects in the solution.
4. Connect your Syncfusion installation to MBARK. (After reconnecting the references, you might want to do an explicit "Save all.")
   Note: This step is required since Syncfusion has not yet released a "Manage Syncfusion References" tool for Visual Studio 2008.)
       a. Four of the MBARK subprojects require the Syncfusion libraries; the process for adding library references is the same for all projects:
           i. Right click on the target project and navigate to Properties→ References.
           ii. If the project contains any existing references starting with "Syncfusion", delete them.
           iii. Click the "Add" button, and from the ".NET" tab, select the libraries that the project requires.
       b. The projects, along with their required Syncfusion libraries, are as follows:
           i. **Infrastructure**
               1. Syncfusion.Grid.Windows
               2. Syncfusion.Shared.Base
               3. Syncfusion.Tools.Windows
           ii. **Sensors**
               1. Syncfusion.Core
               2. Syncfusion.Grid.Base
               3. Syncfusion.Grid.Windows
               4. Syncfusion.Shared.Base
               5. Syncfusion.Tools.Windows
           iii. **VirtualSensor**

       1. Syncfusion.Shared.Base
       2. Syncfusion.Tools.Windows
    iv. **VirtualSensorController**
       1. Syncfusion.Shared.Base

5. Under the Build menu, choose "Rebuild Solution." (Depending on your configuration, you may see some warning messages regarding the "CodeSmith" code generation tool during the build process. See the section on CodeSmith for more information.)
6. Right-click on the *VirtualSensorController* project, and choose "Set as Startup Project." (This tells Visual Studio that the *VirtualSensorController* contains the actual program executable to be started when running or debugging MBARK.)
7. Congratulations, MBARK is built! Go ahead and run it.

CodeSmith (Optional)

MBARK makes use of code-generation. The files generated by CodeSmith, the code-generation tool used for MBARK, are included in the source code distribution. Therefore, an installation of CodeSmith is not required to build MBARK or augment its source code. If manual changes to the generated code are required, the automatically generated source code files may be accessed via expanding the appropriate tree node via the Solution Explorer's 'Show All Files' option.

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This document provides links to evaluation versions of software required to build and compile MBARK. These links are provided as a courtesy to the reader and evaluator, and are in no way intended to as a means to circumvent any required license agreements.

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Feedback

As MBARK evolves, we are trying to make easier to use. This release marks the integration of BiCCL—moving configuration towards a friendlier format.

We still have a long way to go. In the future we hope to make configuration even better by adding comprehensive validation logic to help when troubleshooting configurations. We also plan to replace the Syncfusion controls with a free replacement.

We welcome your constructive feedback. Please email any of your comments, questions, or suggestions to mbark@nist.gov.